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**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

Applicant's or attorney's file reference PG 06007WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International reference No.: PCT/EP 03/10249	International filing date (month/day/year) 09/15/2003	Priority date (month/day/year) 09/13/2002
International Patent Classification (IPC) or national classification and IPC B60T 10/02		
Applicant VOITH TURBO GmbH & CO. KG et al.		

1.	This international preliminary examination report has been prepared by the authority authorized with the international preliminary examination and is transmitted to the applicant according to Article 36.
2.	<p>This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, that is, sheets with descriptions, claims, and/or drawings, which have been amended and are the basis for this report, and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Guidelines under the PCT).</p> <p>These annexes consist of a total of 7 sheets.</p>
3.	<p>This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the office action</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> No preparation of expert opinion with regard to novelty, inventive step, and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Determination with grounds under Rule 66.2 a)ii) with regard to novelty, inventive step, and industrial applicability; documents and explanations supporting such determination</p> <p>VI <input type="checkbox"/> Specific documents cited</p> <p>VII <input type="checkbox"/> Specific defects in the international application</p> <p>VIII <input type="checkbox"/> Specific observations on the international application</p>

Date of submission of the petition 03/16/2004	Date of completion of this report 08/18/2004
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**I. Basis of the report**

1. With regard to the **elements** of the international application (*replacement sheets that have been furnished to the receiving office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report, because they contain no amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

3-12 in the version originally filed  
1, 2, 2a received on 06/23/2004 with letter of 06/21/2004

**Claim, No.**

1-17 received on 06/23/2004 with letter of 06/21/2004

**Drawings, Sheets**

1/4-4/4 in the version originally filed

2. With regard to the **language**: All the elements mentioned above were available or were furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available to this Authority in the language: or were furnished in this language, which is:

- ☐ the language of the translation furnished for the purposes of the international search (under Rule 23.1(b)).
  - ☐ the language of publication of the international application (under Rule 48.3(b)).
  - ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination is carried out on the basis of the sequence listing that is:
- ☐ contained in the international application in written form.
  - ☐ filed together with the international application in computer-readable form.
  - ☐ furnished subsequently to this Authority in written form.
  - ☐ furnished subsequently to this Authority in computer-readable form.
  - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure content in the international application as filed has been furnished.
  - ☐ The statement that the information compiled in computer-readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the elimination of the following documents:

- ☐ description, pages:
- ☐ claims, No.:
- ☐ drawings, sheet:

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5. ☐ This report has been prepared without considering (some of) the amendments, since they have been considered to go beyond the disclosure content as originally filed for the reasons given in the opinion of the Authority (Rule 70.2(c)).

*(Reference is made under item 1 to replacement sheets that contain such amendments; they are attached to this report.)*

6. Additional observations, if any:

**V. Determination with grounds under Article 35(2) with regard to novelty, inventive step, and industrial applicability; documents and explanations supporting such determination**

1. Determination

Novelty (N)	Yes: Claims 1-17
	No: Claims
Inventive step (IS)	Yes: Claims 1-17
	No: Claims
Industrial applicability (IA)	Yes: Claims: 1-17
	No: Claims:

2. Documents and explanations:

**See attachment**

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**In regard to item V**

**Determination with grounds relative to novelty, inventive step, and industrial applicability;  
documents and explanations supporting such determination**

Reference is made to the following documents:

D1: US A 3,924,713  
D2: US B 6,223,7181  
D3: EP B 0 885,351  
D4: EP B 0 932,539  
D5: WO 98/35171 A  
D6: WO 98/15725 A  
D7: EP A 0 716,966

**Novelty and inventive step**

1. The document D1 is regarded as nearest prior art with respect to the subject of claim 1.  
It discloses (the references in parentheses refer to this document):

A drive unit of a vehicle containing a vehicle cooling circuit  
comprising  
a hydrodynamic retarder (1) containing a rotor blade wheel and a stator blade wheel,  
the hydrodynamic retarder (1) being arranged in the cooling circuit and the cooling medium  
being the working medium of the retarder,

- 1.1 The subject of claim 1 therefore differs from the retarder known from D1 in that

the retarder (1) comprises means for emptying (6, 26) of a quantity of residual fluid in  
non-braking operation against the external pressure built up by the cooling system.

- 1.2 The subject of claim 1 is accordingly novel (PCT Article 33(2)).

2. The **problem** to be solved with the present invention can accordingly be regarded as

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consisting in reducing the high power loss existing for known retarders in non-braking operation.

- 2.1 The **solution** to this problem proposed in claim 1 of the present application is based on an inventive step for the following reasons (PCT Article 33(3)):

The nearest prior art (D1) shows a device for aspirating the gaseous volume out of the interior of the retarder working chamber so that the retarder can be filled more rapidly; an aspiration of residual fluid is not proposed, nor would an aspiration of residual fluid in D1 be possible in non-braking operation (column 6, lines 21-23).

3. Claims 2-17 are dependent on claim 1 and thus also satisfy the requirements of the PCT in relation to novelty and inventive step.

**Industrial applicability:**

4. The invention can be used in the motor vehicle industry.